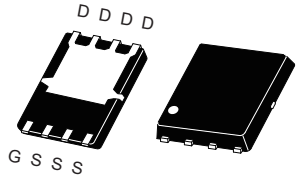
CEZ11C6

N-Channel Enhancement Mode Field Effect Transistor

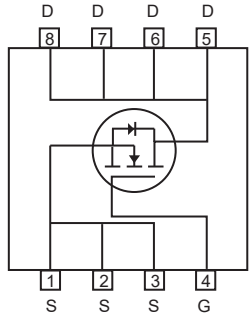
PRELIMINARY

FEATURES

- 65V, 199A, $R_{DS\ (ON)}$= 1.35mΩ @V_{GS}= 10V.
- Super high dense cell design for extremely low $R_{DS(ON)}$.
- High power and current handing capability.
- Pb-free lead plating ; RoHS compliant.
- Halogen Free.
- Surface mount Package.



P-PAK 5X6



APPLICATIONS

- Synchronous rectification.
- DC/DC converter.
- Motor drive switch.
- Battery and load switch.

ABSOLUTE MAXIMUM RATINGS T_C = 25°C unless otherwise noted

Parameter	Symbol	Limit	Units
Drain-Source Voltage	V_{DS}	65	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous	I_D @$R_{\theta JC}$	199	A
	I_D @$R_{\theta JA}$	51	A
Drain Current-Pulsed [a]	I_{DM}@$R_{\theta JC}$	796	A
	I_{DM} @$R_{\theta JA}$	204	A
Maximum Power Dissipation	P_D	96	W
Single Pulsed Avalanche Energy [d]	E_{AS}	1058	mJ
Repetitive Avalanche Energy [d]	E_{AR}	9.6	mJ
Single Pulsed Avalanche Current [d]	I_{AS}	46	A
Operating and Store Temperature Range	T_J,T_{stg}	-55 to 150	°C

Thermal Characteristics

Parameter	Symbol	Limit	Units
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	1.3	°C/W
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	20	°C/W

This is preliminary information on a new product in development now
Details are subject to change without notice .

Rev 1. 2023.Sep
http://www.cet-mos.com

Electrical Characteristics T_C = 25°C unless otherwise noted

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} = 0V, I_D = 250μA	65			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 65V, V_{GS} = 0V			1	μA
Gate Body Leakage Current, Forward	I_{GSSF}	V_{GS} = 20V, V_{DS} = 0V			100	nA
Gate Body Leakage Current, Reverse	I_{GSSR}	V_{GS} = -20V, V_{DS} = 0V			-100	nA
On Characteristics [b]						
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS} = V_{DS}, I_D = 250μA	2		4	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 20A		1.05	1.35	mΩ
Gate Input Resistance	R_g	f=1MHz,open Drain		2.8		Ω
Dynamic Characteristics [c]						
Input Capacitance	C_{iss}	V_{DS} = 25V, V_{GS} = 0V, f = 1.0 MHz		5980		pF
Output Capacitance	C_{oss}			2335		pF
Reverse Transfer Capacitance	C_{rss}			80		pF
Switching Characteristics [c]						
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = 30V, I_D = 20A, V_{GS} = 10V, R_{GEN} = 6Ω		40		ns
Turn-On Rise Time	t_r			36		ns
Turn-Off Delay Time	$t_{d(off)}$			86		ns
Turn-Off Fall Time	t_f			58		ns
Total Gate Charge	Q_g	V_{DS} = 30V, I_D = 20A, V_{GS} = 10V		97		nC
Gate-Source Charge	Q_{gs}			19		nC
Gate-Drain Charge	Q_{gd}			40		nC
Drain-Source Diode Characteristics and Maximun Ratings						
Drain-Source Diode Forward Current	I_S				80	A
Drain-Source Diode Forward Voltage [b]	V_{SD}	V_{GS} = 0V, I_S = 20A			1.2	V
Reverse Recovery Time	T_{rr}	I_F = 20A,di/dt = 100A/us		96		ns
Reverse Recovery Charge	Q_{rr}			228		nC

Notes :
a.Repetitive Rating : Pulse width limited by maximum junction temperature.
b.Pulse Test : Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
c.Guaranteed by design, not subject to production testing.
d.L =1mH, I_{AS} =46A, V_{DD} = 24V, R_G = 25Ω, Starting T_J = 25°C.

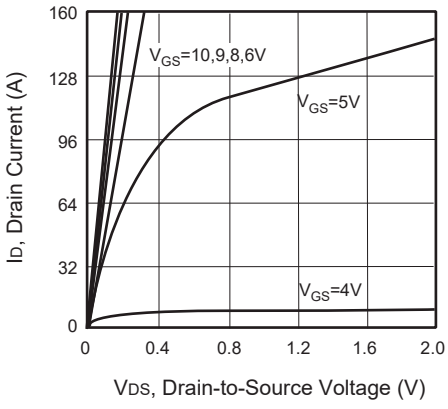


Figure 1. Output Characteristics

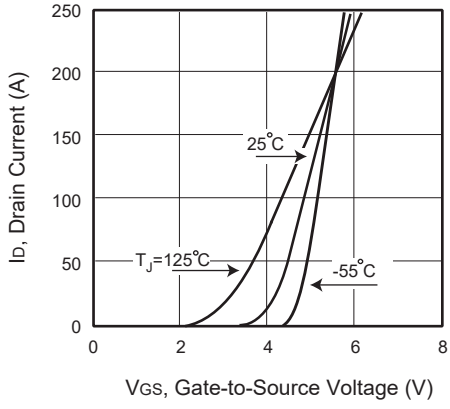


Figure 2. Transfer Characteristics

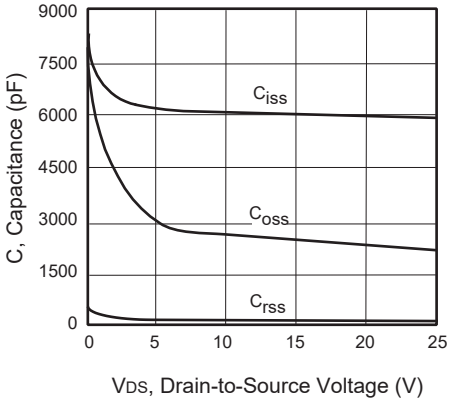


Figure 3. Capacitance

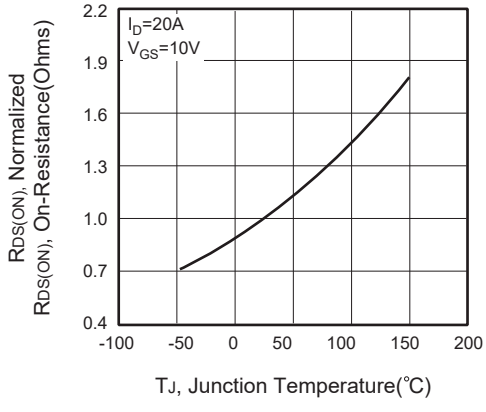


Figure 4. On-Resistance Variation with Temperature

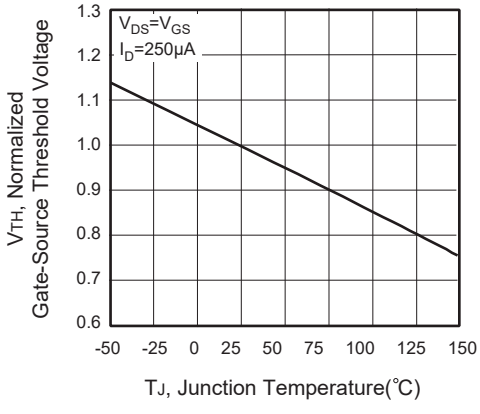


Figure 5. Gate Threshold Variation with Temperature

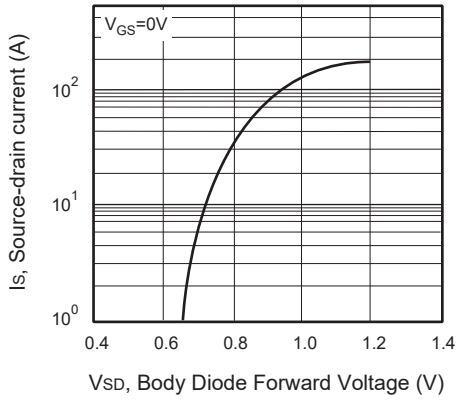


Figure 6. Body Diode Forward Voltage Variation with Source Current

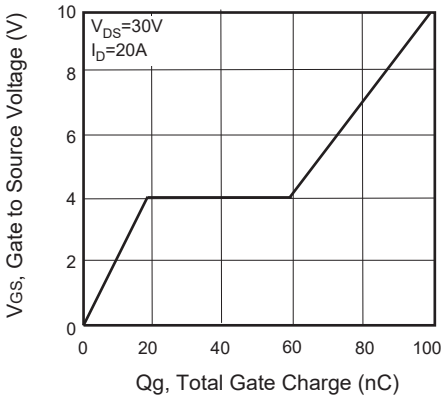


Figure 7. Gate Charge

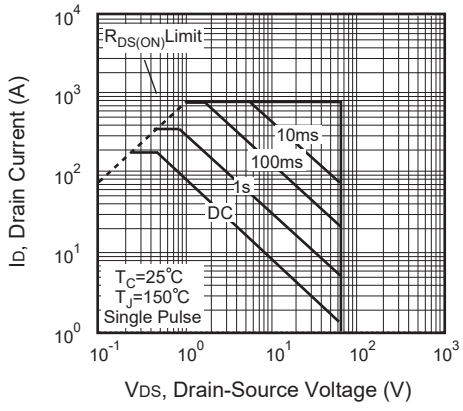


Figure 8. Maximum Safe Operating Area

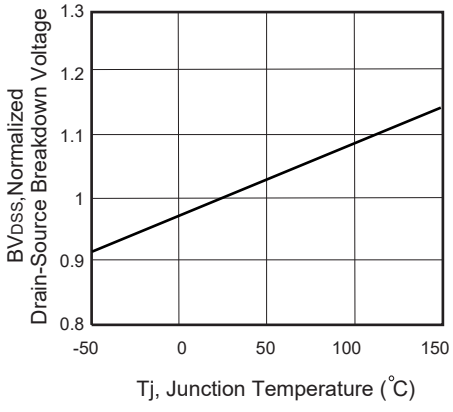


Figure 9. Breakdown Voltage Variation VS Temperature

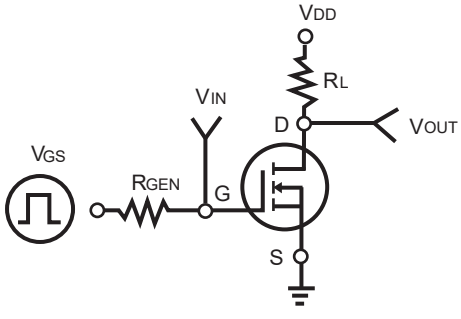


Figure 10. Switching Test Circuit

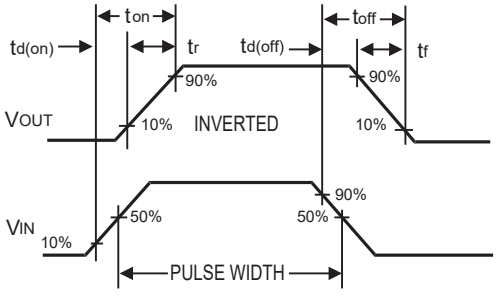


Figure 11. Switching Waveforms

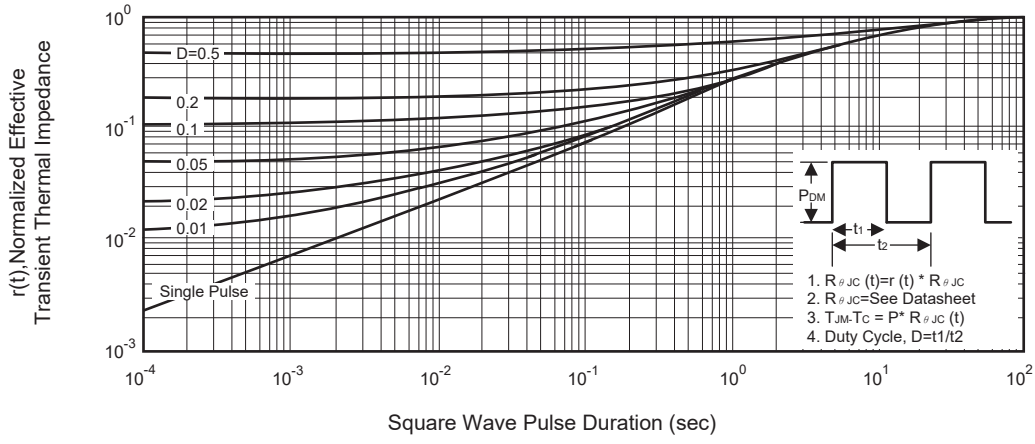
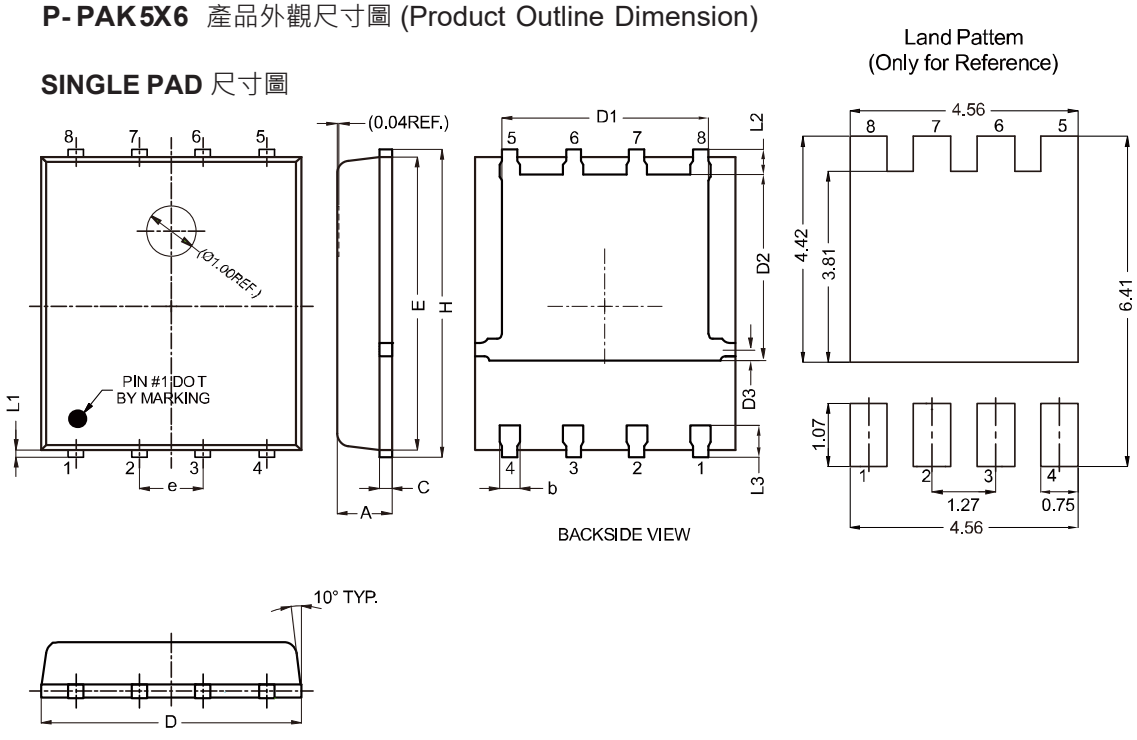


Figure 12. Normalized Thermal Transient Impedance Curve

P-PAK5X6 產品外觀尺寸圖 (Product Outline Dimension)

SINGLE PAD 尺寸圖



SYMBOLS	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.800	1.200	0.031	0.047
b	0.200	0.510	0.008	0.020
c	0.150	0.350	0.006	0.014
D	4.800	5.400	0.189	0.213
D1	3.610	4.400	0.142	0.173
D2	3.300	4.300	0.130	0.169
D3	0.396	0.600	0.016	0.024
E	5.400	6.100	0.213	0.240
e	1.270 TYP		0.050 TYP	
H	5.850	6.300	0.230	0.248
L1	0.080	0.330	0.003	0.013
L2	0.400	0.800	0.016	0.031
L3	0.460	0.740	0.018	0.029